Space Weather Forecast

Issued on Friday, 08 March 2024 at 01:20 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of G1/Minor Storms on day 1 and 2 (08-09 Mar). Chance of Moderate-class flares.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity remains Low with the peak flare at 07/0618UTC from AR3599. There are six numbered and one unnumbered sunspot regions on the visible disc. AR3599, Dai/Beta-Gamma-Delta, continues to be the most magnetically complex, now with two delta regions within its intermediate portion. The remaining regions are small and generally stable with continued slight development of the small unnumbered region observed.

No Earth directed coronal mass ejections observed in available imagery, though a faint coronal mass ejection from near centre disk leaving the sun around 07/1300UTC is still under investigation.

Solar Wind / Geomagnetic Activity: Solar wind parameters were at slightly elevated to slow ambient levels. Total magnetic field strength has been weak but on an increasing trend, with a brief peak to moderate around 07/1830 UTC. The north-south component has varied weakly. Geomagnetic activity was Quiet to Unsettled (Kp 2-3) with a brief period of Active (Kp 4) between 071800-2100 UTC.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) remained at background levels with no radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Expected to remain generally low with a chance of an isolated Moderate class flare.

Solar Wind / Geomagnetic Activity: A coronal mass ejection may give a glancing blow later on day 1 (08 Mar) or into early day 2 (09 Mar). A coronal hole high speed stream should arrive at Earth later day 1 (08 Mar) and persist into day 2 (09 Mar), with solar winds perhaps reaching elevated levels. Speeds should ease later day 3 and into day 4 (10/11 Mar).

Quiet to Unsettled conditions initially. Active intervals developing later and into day 2 (09 Mar) with a chance of G1/Minor Storm intervals in association with the arrival of the high speed stream combined with possible effects of the glancing coronal mass ejection. Geomagnetic activity gradually easing through day 3 (10 Mar) and into day 4 (11 Mar), becoming Quiet.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is expected to persist at background levels.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	30	30	5	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	30	30	30	30
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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